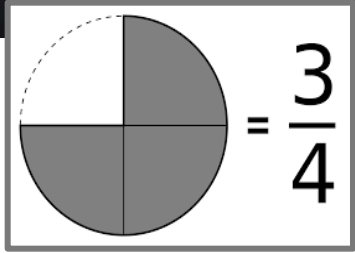


# Using Learning Styles to Differentiate: A Usability Study of a Teacher Resource Website



Jennifer Smith  
University of Hawai'i at Manoa  
Learning Design and Technology  
jls44@hawaii.edu

# What is your favorite subject?



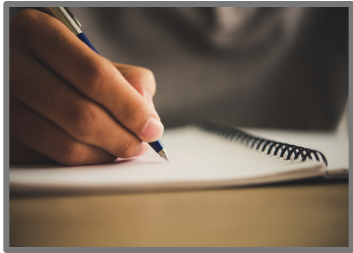
Math



Art



Science



Writing



P.E.



Social Studies



# How do you prefer to learn?



Seeing



Hearing



Doing



Each each person has a learning style as “individual as a signature.”

Dunn, Beaudry and Klavas, 2002





# Problem

Differentiate instruction.

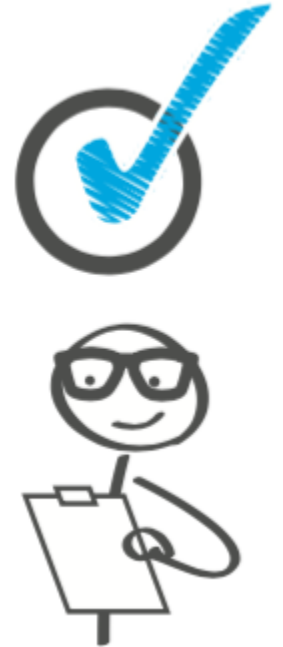
Time is a commodity.

Carolan & Guinn, 2007



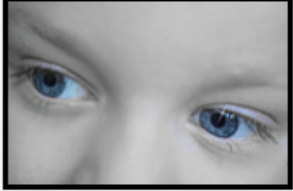
# Purpose

Determine the usability of a teacher resource website on learning styles and differentiation for K-12 educators.



# Website Design

<http://jls4486.wixsite.com/outsidethebox>



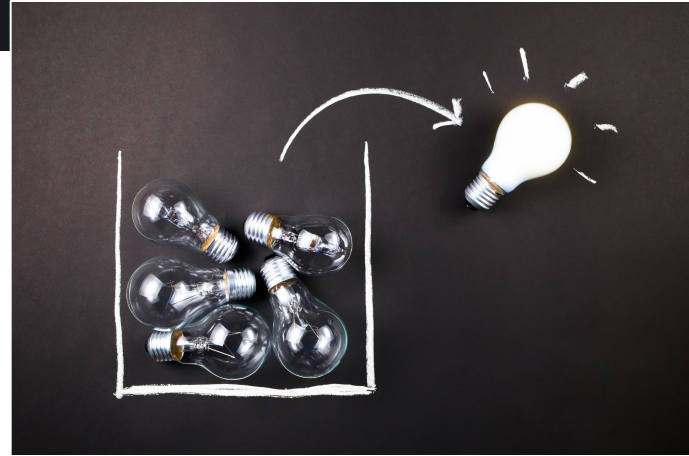
Visual



Auditory



Kinesthetic



Aesthetics ↔ Usability

Glore and David, 2012



# Target Audience

K-12 teachers  
and home educators.



# Tools



WIX.com

shutterstock

PowToon

Google



# Content

Differentiation

Learning Styles

Assessments

Strategies



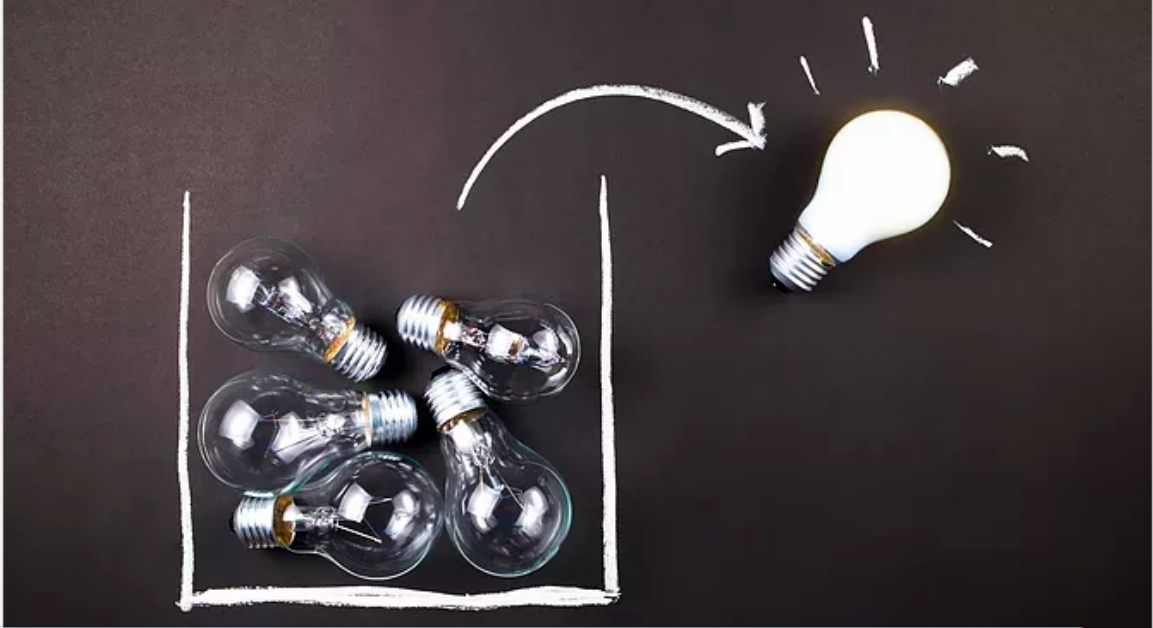
# Content

Self-evident  
Obvious  
Self-explanatory  
Krug, 2006

**OUTSIDEtheBOX**  
Learning Styles & Differentiation  
A Resource for Teachers

Search Site

[Home](#) [Learning Styles](#) [Learning Styles Assessment](#) [Teaching Strategies](#) [About](#)



"Every student can learn, just not on the same day or in the same way." George Evans

# Content

## OUTSIDEtheBOX

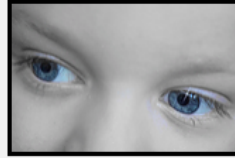
### Learning Styles & Differentiation

A Resource for Teachers

[Home](#)[Learning Styles](#)[Learning Styles Assessment](#)[Teaching Strategies](#)[About](#)

## Learning Styles

Have you ever wondered why you are good at certain subjects and not so good at others? Or, have you ever wondered why your student or child likes certain subjects or learning environments and not others? This is because everyone learns differently. While there are several models, there are generally three main modalities of learning. They are visual, auditory and kinesthetic.



Visual



Auditory



Kinesthetic

What's Your Learning Style?

Visual Learners



-Remember details by closing eyes and visualizing them.



# Content


## OUTSIDEtheBOX

Learning Styles & Differentiation  
A Resource for Teachers

[Home](#)[Learning Styles](#)[Learning Styles Assessment](#)[Teaching Strategies](#)[About](#)

Online Assessment

Paper Assessment



### Learning Styles Assessment

Your preferred learning style is the way in which you learn best. Three learning styles that are often identified in students are visual, auditory and kinesthetic.

Administer this 5-minute assessment to identify your student's preferred learning style and receive study tips for each.



# Learning Style Assessment

Choose all that describe you. The list with the greatest number of checks is how you like to learn best.

## Visual Learning Style

Choose all that describe you.

- ☐ I remember best by writing things down or drawing pictures.
- ☐ I ask for directions to be repeated.
- ☐ I like to read about something rather than hear about it.
- ☐ I am a good speller.
- ☐ I like to learn with posters, videos, and pictures.
- ☐ I am good at reading maps and graphs.
- ☐ When someone is talking, I create pictures in my mind about what they are saying.
- ☐ After school, I like to read books.
- ☐ I like it when my teacher uses lots of pictures when teaching.
- ☐ I can remember something if I picture it in my head.

## How Do I Learn?



Place a check (✓) in all the blanks that describe you. The list with the greatest number of checks is how you like to learn best.

## Visual Learning Style

- \_\_\_1. I remember best by writing things down or drawing pictures.
- \_\_\_2. I ask for directions to be repeated.
- \_\_\_3. I like to read about something rather than hear about it.
- \_\_\_4. I am a good speller.
- \_\_\_5. I like to learn with posters, videos, and pictures.
- \_\_\_6. I am good at reading maps and graphs.

# Content

## OUTSIDEtheBOX

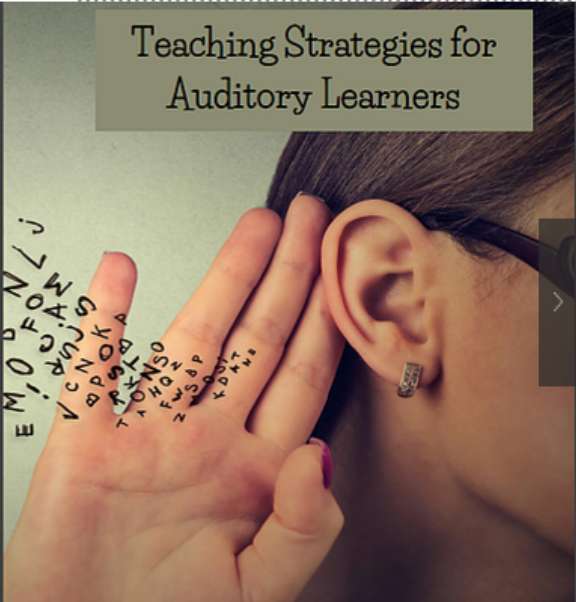
Learning Styles & Differentiation  
A Resource for Teachers

[Home](#) [Learning Styles](#) [Learning Styles Assessment](#) [Teaching Strategies](#) [About](#)

Have students:

- Answer questions orally.
- Give oral reports.
- Repeat facts aloud with their eyes closed.
- Use repetition to memorize.
- Recite information aloud when they're studying (i.e., facts, spelling words).
- Use tape recorders to record and playback lessons.
- Participate in small and large group discussions before working independently.
- Study in groups.
- Use video and audio tapes.
- Use books on tape.
- Use melodies, rhythms and beats to reinforce information.

### Teaching Strategies for Auditory Learners



Print  
Teaching Strategies  
Chart HERE

# Content

## OUTSIDetheBOX

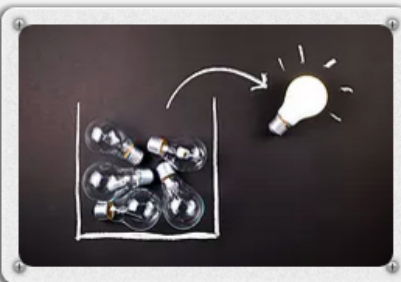
### Learning Styles & Differentiation

A Resource for Teachers

[Home](#)[Learning Styles](#)[Learning Styles Assessment](#)[Teaching Strategies](#)[About](#)

### Welcome to OUTSIDetheBOX!

This site was created as a result of research done on differentiating instruction. Differentiation is the buzz word in education. Educators are encouraged to consider students as individual learners and teach to each child accordingly. This site is intended to be a useful tool where educators can find information and resources to reach every student outside of the traditional box. Feel free to contact us with any inquiries.

[Learning Styles Research](#)[Contact Us](#)



# Usability Testing

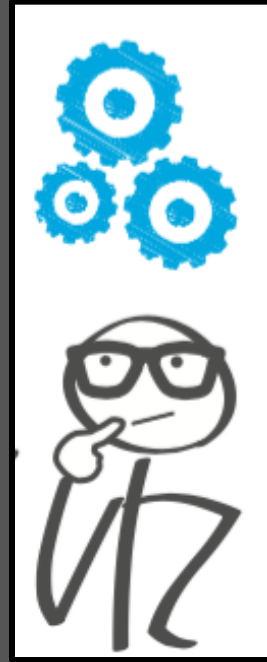


# Why usability testing?

Finding usability problems isn't worth much unless you actually end up *fixing* them.

Krug, n.d.

# Methods



# Instruments

## Consent to Participate in Research Project

## Pre-Study Survey

Aloha! Thank you for your interest in this research project. As part of the University of Hawaii's MEd program in Learning Design and Technology a website has been created as a teacher resource for differentiation. The content of this website is focused on learning styles and appropriate teaching strategies to facilitate differentiation. Please fill out a short survey to ensure you meet the qualifying requirements to participate in the study.

In this survey, participants will complete questions about the technologies they use, Internet access and their teaching experiences. Your information will help improve the website. The anticipated duration of this survey is less than 10 minutes.

Your participation in this study is completely voluntary. And, you may withdraw from the survey at any time.

Thank you very much for your time and support.

\* Required

Are you or have you been a K-12 or home educator? \*

☐ Yes

☐ No

# Testing



Screencastify

outsidethebox | Learning Styles | powered by Screencastify

js4486.wixsite.com/outsidethebox/differentiation

OUTSIDEtheBOX  
Learning Styles & Differentiation  
A Resource for Teachers

Home Learning Styles Learning Styles Assessment Teaching Strategies About

Online Assessment

Paper Assessment

Visual

Auditory

Learning Styles Assessment

Your preferred learning style is the way in which you learn best. Three learning styles that are often identified in students are visual, auditory and kinesthetic.

YouTube Search

Visual Auditory Kinesthetic Create a WIX site!

What's Your Learning Style?

Learning Styles!

Created

7:08 / 15:00

This site was created using WIX.com. Create your own for FREE >>



# Usability Test Protocol

---

*Modified from Usability Script- Rocket Surgery Made Easy © 2010 Steve Krug*

## **Preliminary Questions:**

1. Do you know anything about various learning styles, and if so, what knowledge do you have?
2. What kinds of information might you expect to see on a website about learning styles and differentiation?
3. Have you ever built or helped edit a website? If so, what program or software did you use?

## **Tasks:**

1. You are beginning the school year and would like to first find out your student's preferred learning styles. Where would you locate that information?
2. You are planning a lesson and would like to incorporate learning strategies that match particular learning styles. Where would you find that information?
3. You would like to find out more information about learning styles. Where can you go to learn more?

## **Follow Up Questions:**

1. On a scale of 1 to 5, with 1 representing very difficult and 5 representing very easy, how would you rate your experience during today's testing? Why?
2. After participating in this study, would you recommend this website to any of your friends? Why?



# Test Session Issues

Test Session Issues					
Type of issue	Description	Location	URL Link	Possible solution	Notes
Redundant menu and buttons	Have both buttons & menus that go to the same pages on home page.	Homepage	<a href="http://jls4486.wixsite.com/outsidethebox">http://jls4486.wixsite.com/outsidethebox</a>	Delete buttons on page to make only one menu.	Done
How do teachers collect data from the learning styles assessment?		Learning Styles Assessment	<a href="https://goo.gl/forms/PjxH1vH14SRpZW273">https://goo.gl/forms/PjxH1vH14SRpZW273</a>	Change settings so teachers can make their own copy.	
Include search bar	Include search bar in the menu area	All pages	<a href="http://jls4486.wixsite.com/outsidethebox/differentiation">http://jls4486.wixsite.com/outsidethebox/differentiation</a>		Done
Images on learning styles page	Are images clickable?	Learning Styles	<a href="http://jls4486.wixsite.com/outsidethebox/learning-styles">http://jls4486.wixsite.com/outsidethebox/learning-styles</a>	Make images clickable with more information.	Done
Where to find out more information on learning styles	Users chose either learning styles page or the about page			Make more clear.	
Serious issue	User cannot complete task or serious suggestion/concern.				
Concerning issue	User completed the task with issues or a concerning suggestion.				
Minor issue	User completed task easily with little frustration or had a minor suggestion.				

## Post-Study Survey

# Post-Study Survey

\* Required

## Design Layout

The home page layout is easy to understand. \*

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

The website is visually appealing. \*

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

**\* Required**

## Design Layout

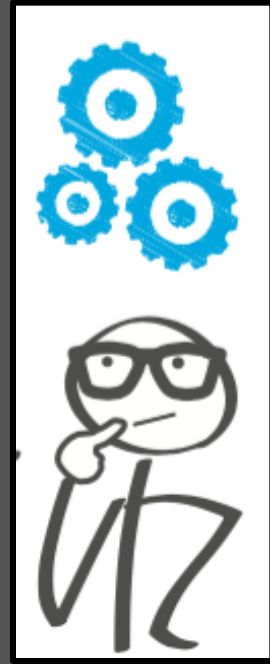
The home page layout is easy to understand. \*

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

The website is visually appealing. \*

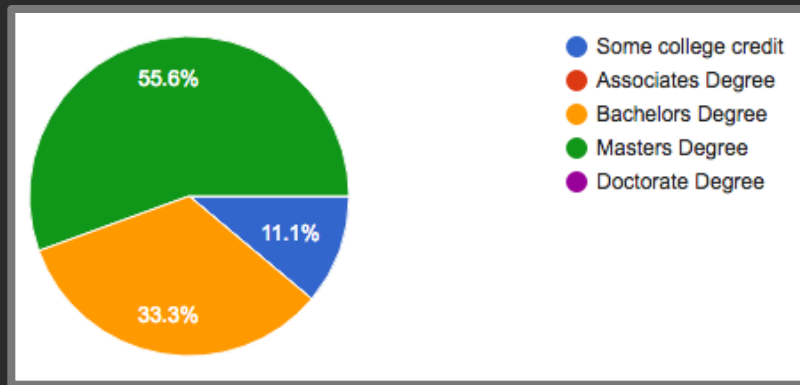
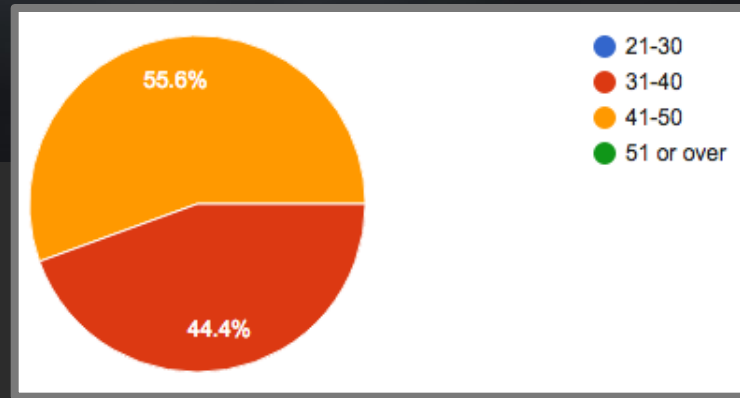
	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

# Results



# Demographics

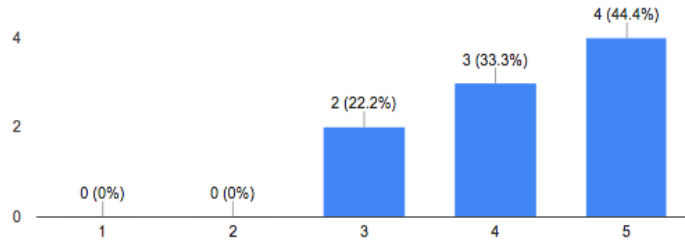
Demographic Characteristic	Number of Participants	Percentage
<b>Age</b>		
31-40	4	44%
41-50	5	56%
<b>Gender</b>		
Female	9	100%
<b>Level of Education</b>		
Some College	1	11%
Bachelor's Degree	3	33%
Master's Degree	5	56%



# Technology Use

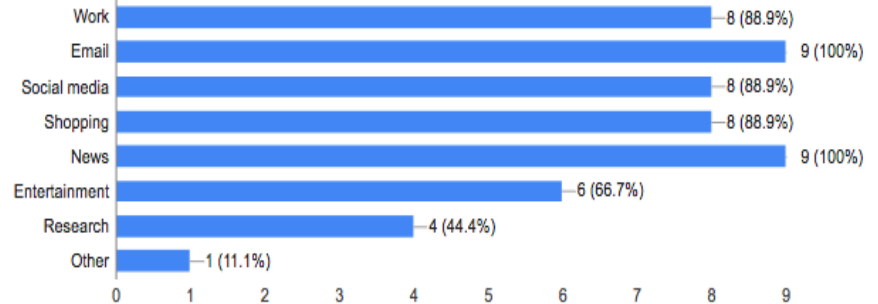
## Technology Use

Please rate your level of computer skill? (9 responses)



Extremely Poor (1)  
Excellent (5)

What do you do on the internet? Check all that apply. (9 responses)



# Data

Task Success

Design Layout

User Satisfaction

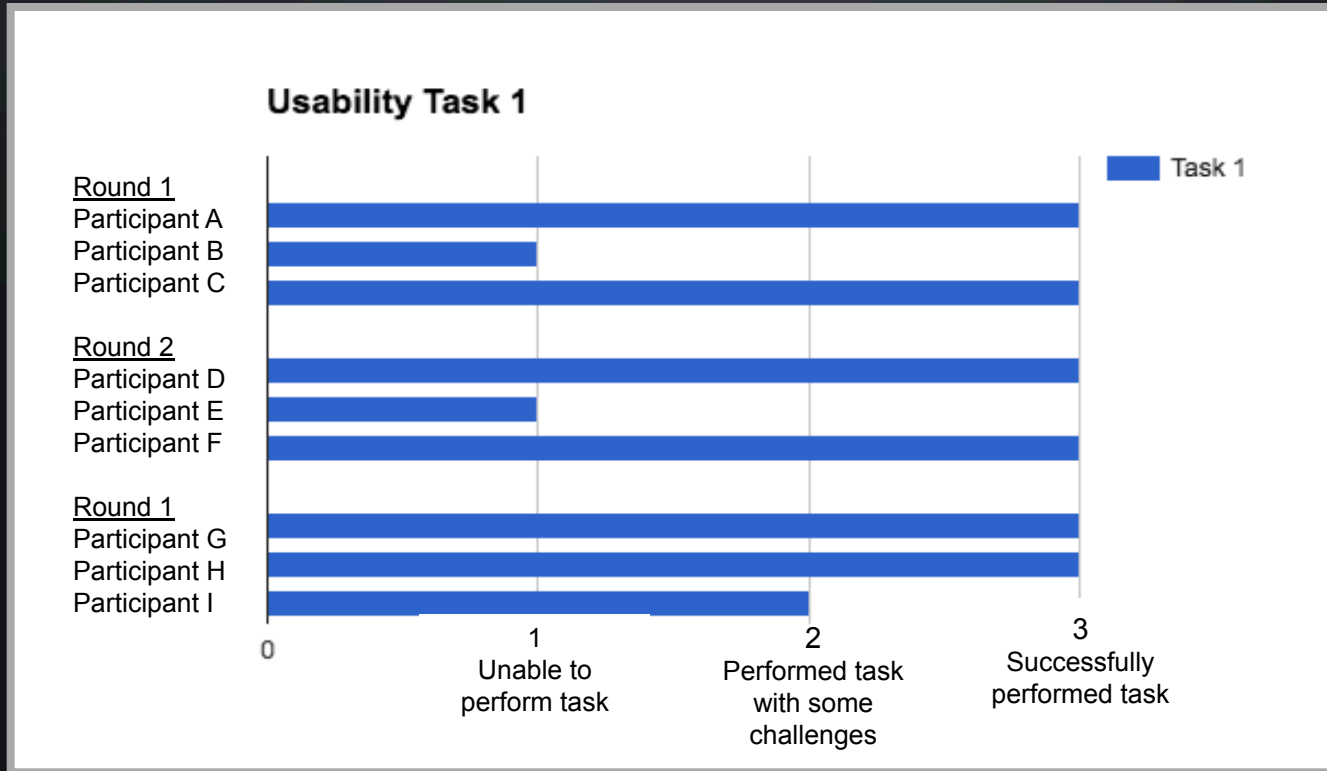
- ❑ 5 point scale
- ❑ Layout
- ❑ Navigation
- ❑ Ease of Use
- ❑ Effectiveness





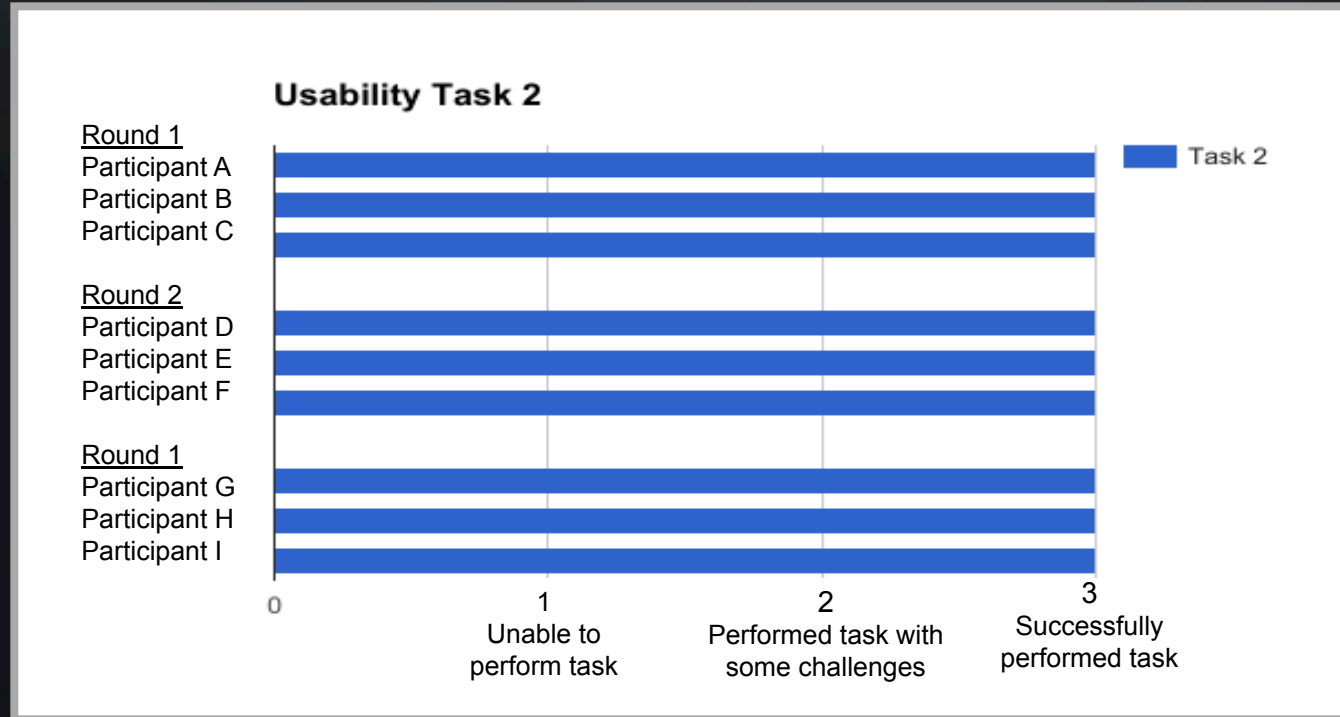
# Task Completion

Determine students' preferred learning style.



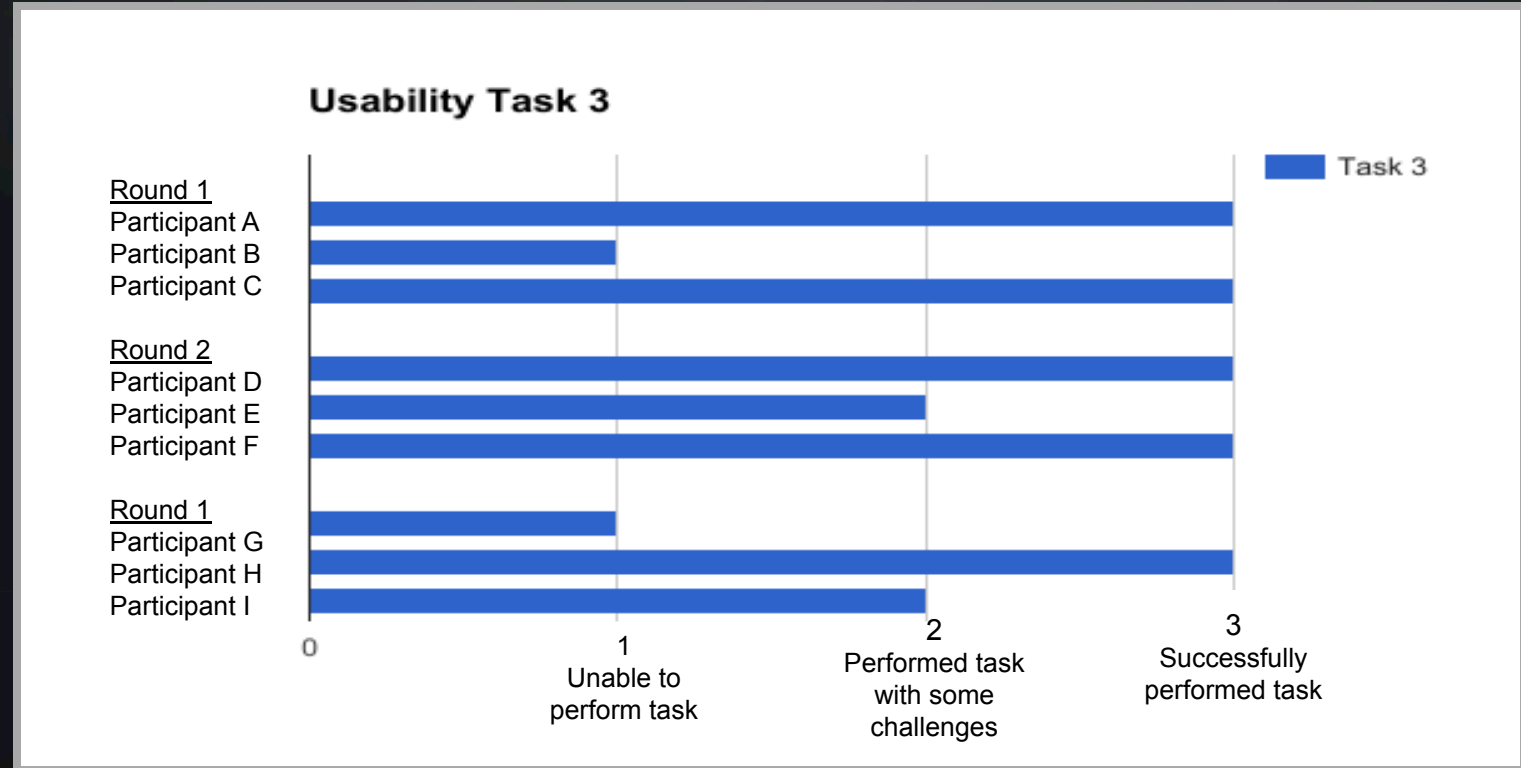
# Task Completion

Locate learning strategies that match particular learning styles.



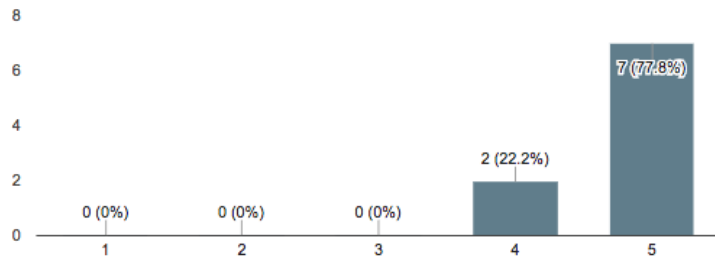
# Task Completion

Locate more information on learning styles.

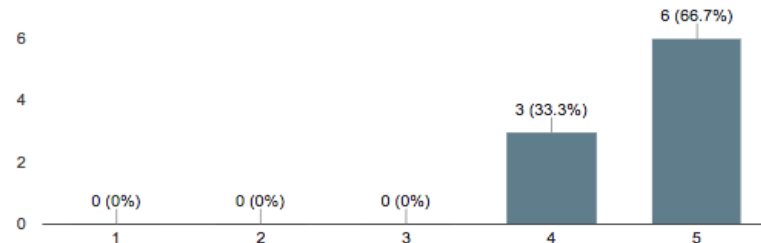


# Design Layout

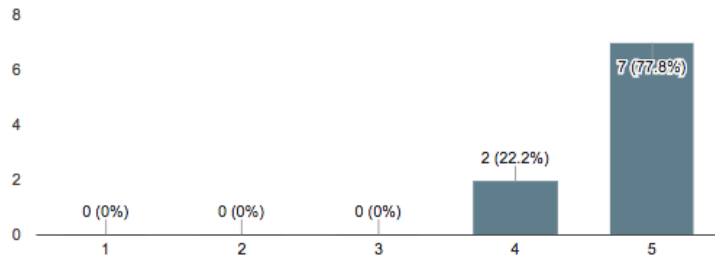
The home page layout is easy to understand. (9 responses)



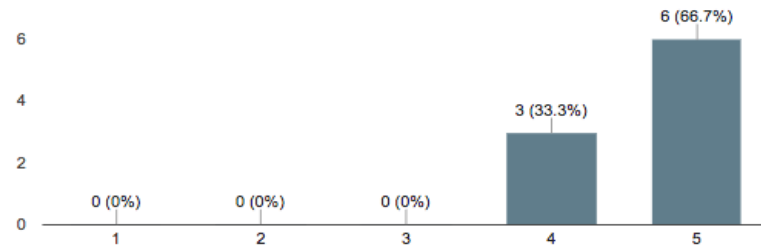
The images are interesting. (9 responses)



The website is visually appealing. (9 responses)



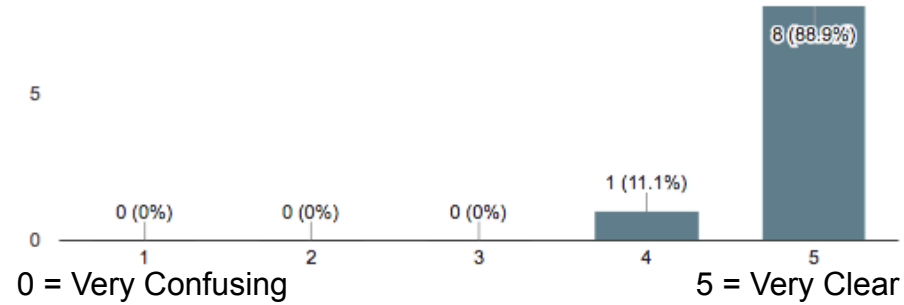
The organization of the site is logical and easy to follow. (9 responses)



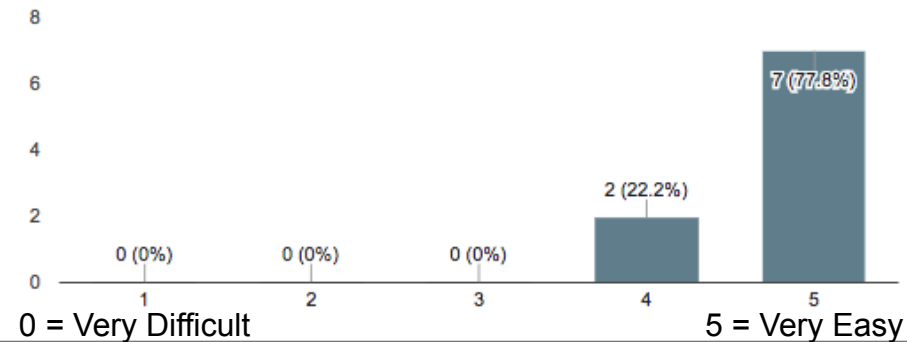
0 = Strongly Disagree

5 = Strongly Agree

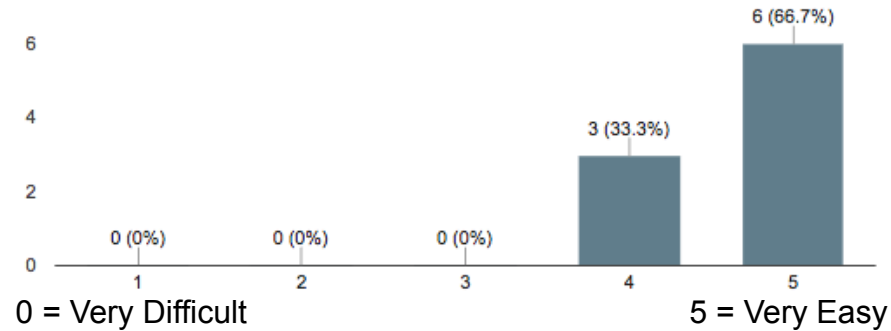
## Layout



## Navigation

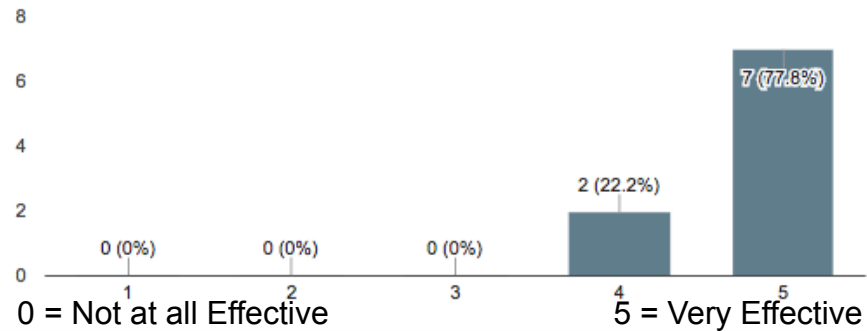


## Ease of Use



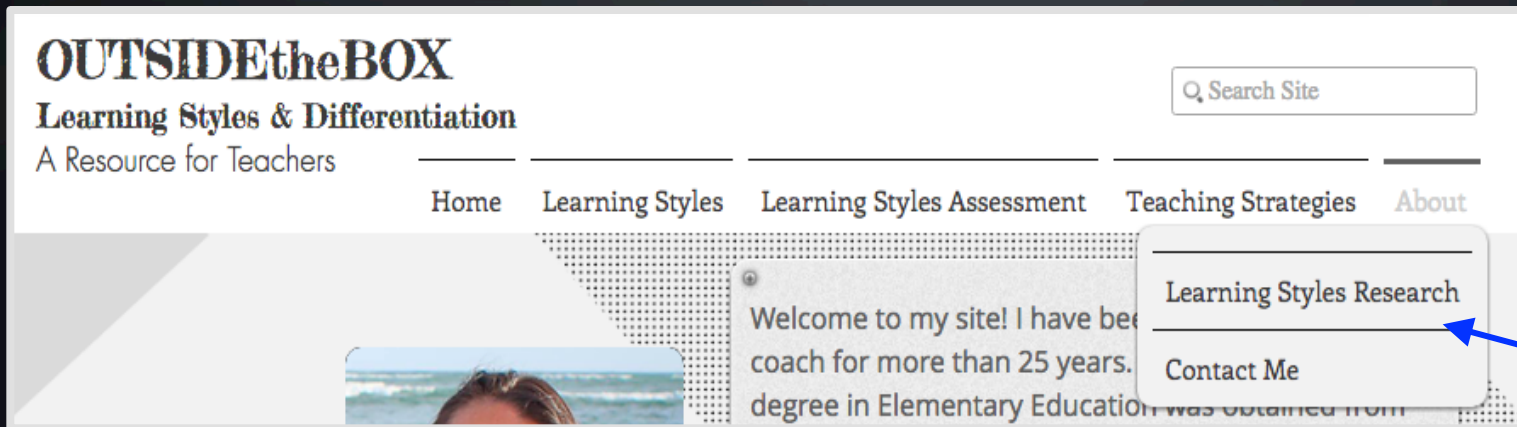
## Effectiveness

(9 responses)

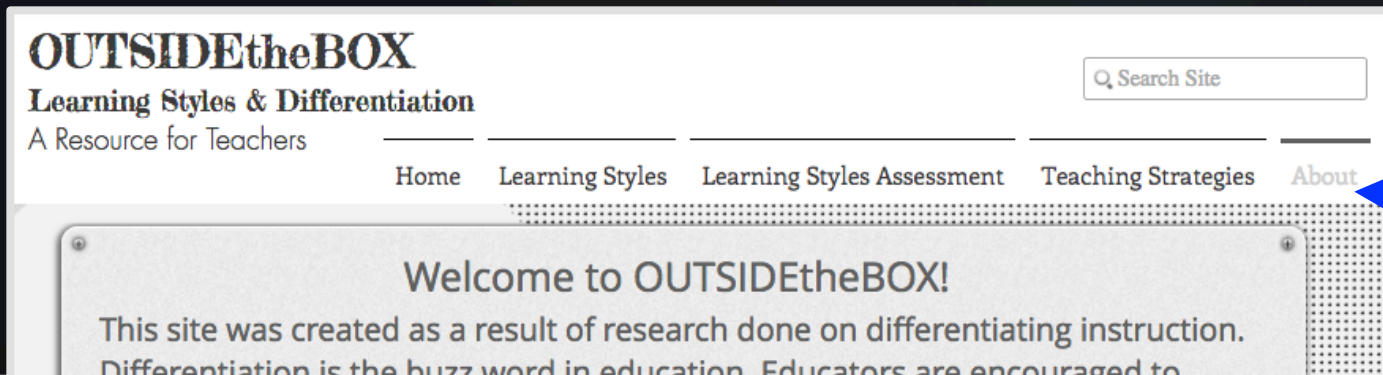




# Revisions

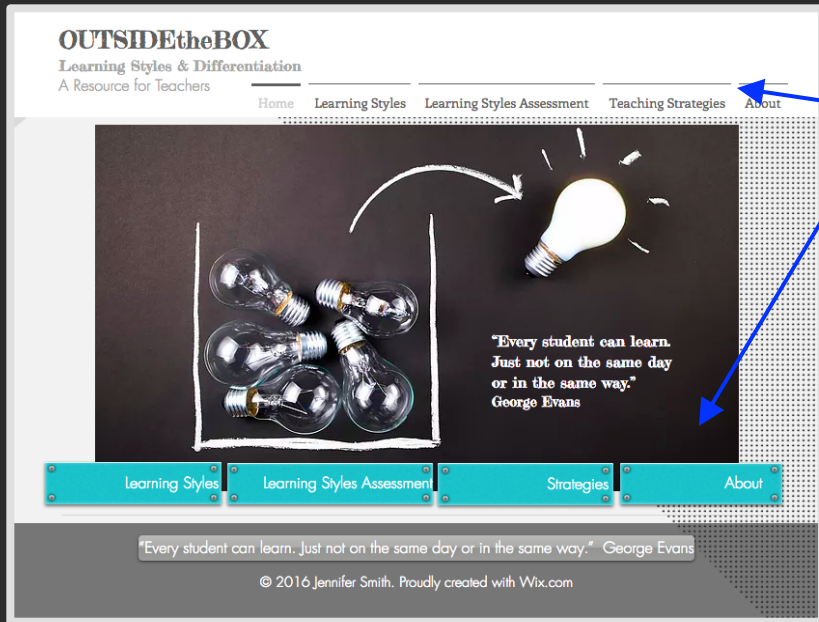


Initial design with drop-down menu.



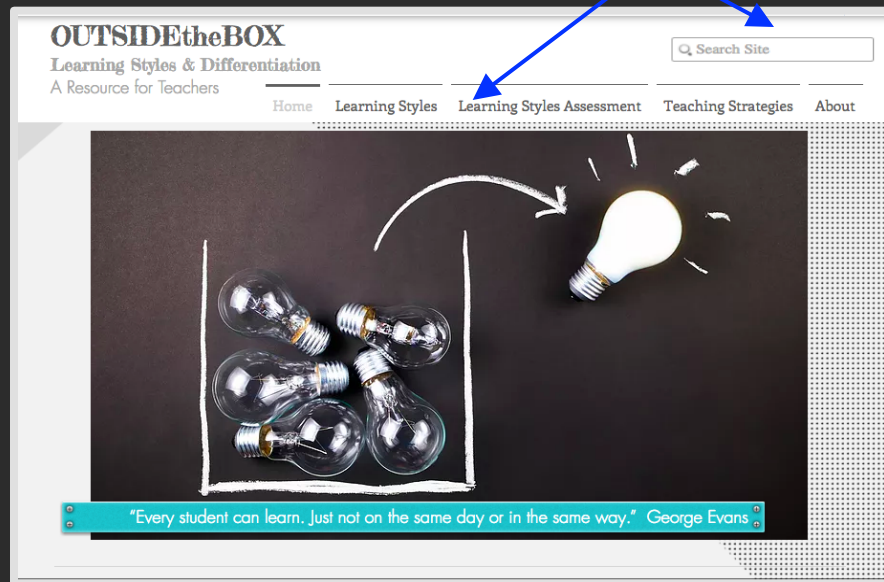
Final page design.  
No drop-down menu.

# Revisions



Original  
redundant  
menu on  
homepage.

Final change: one menu  
option and addition of  
the search bar.



# Revisions

First Iteration:  
Images not  
clickable.

User had to  
scroll down for  
information.

## OUTSIDEtheBOX

Learning Styles & Differentiation

A Resource for Teachers

Home

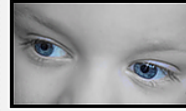
Learning Styles

Learning Styles Assessment

Teaching Strategies

About

Learning  
Styles



What's Your Learning Style?

Visual Learners



-Remember details by closing eyes  
and visualizing them.



### Visual Learning Style

See to learn - visual learners tend to be neat and tidy, excellent spellers and are quick to read charts. They are also usually fast talkers.



### Auditory Learning Style

Hear to learn - Auditory learners learn best through lectures, presentations or audio books. Auditory learners benefit

# Revisions

Final Iteration:  
Clickable images  
that lead to more  
specific information  
about each  
learning style.

## OUTSIDEtheBOX

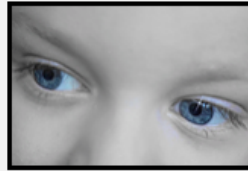
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Visual



Auditory



Kinesthetic

What's Your Learning Style?

Visual Learners



-Remember details by closing eyes and visualizing them.



# Findings

- ❑ Participants very interested in topic
- ❑ Feedback gained was invaluable
- ❑ Usability study equally invaluable



Finding usability problems isn't worth much unless  
you actually end up *fixing* them.

Krug, 2010



# Positive Feedback

## Participant Comments:

Very easy to navigate.

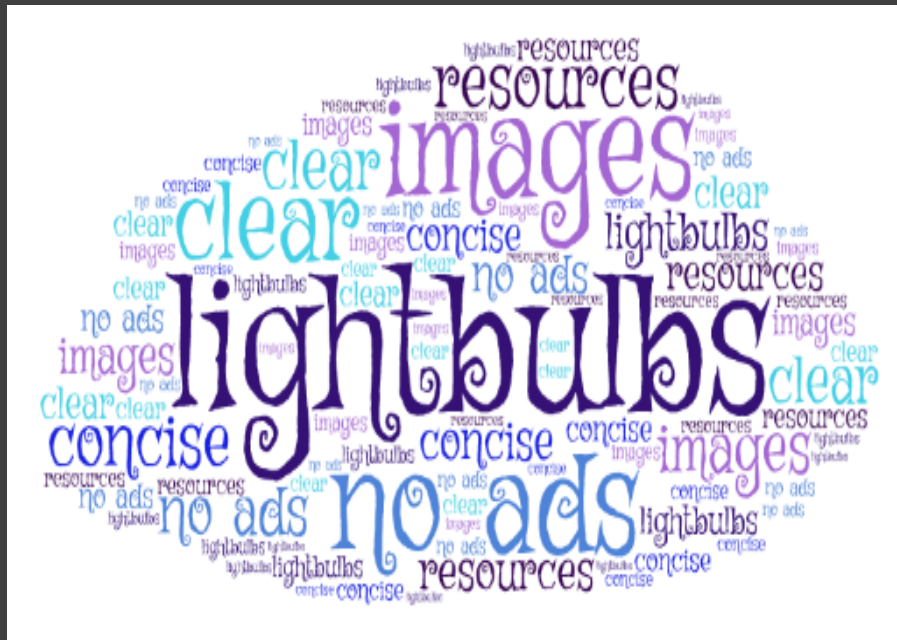
Great images.

Very clean.

No ads, clear and concise.

Really like the light bulbs.

I will definitely use this!



# Mahalo



# References

- Carolan, J., & Guinn, A. (2007). *Differentiation: Lessons from Master Teachers*. Retrieved May 8, 2016, from <http://www.ascd.org/publications/books/110058e4/chapters/Differentiation@-Lessons-from-Master-Teachers.aspx>
- Dunn, R., Beaudry, J. S., & Klavas, A. (2002). Survey of Research on Learning Styles, *II*(2), 75–98. Retrieved from <http://citirx.4arc.com/csta/pdf/30learnjournal.pdf#page=76>
- Krug, S. (2006). *Don't Make Me Think! A Common Sense Approach to Web Usability*. Berkeley, CA: New Riders.
- Krug, S. (2010). *Rocket Surgery Made Easy: The Do -It- Yourself Guide to Finding and Fixing Usability Problems*. Berkeley, CA: New Riders.
- Krug, S. (n.d.). *Advanced Common Sense - Rocket Surgery Made Easy*. Retrieved March 7, 2017, from <http://www.sensible.com/rsme.html>